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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,290	08/31/2004	Jurgen Jean Louis Hoppenbrouwers	NL 020164	6737

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
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EXAMINER

SHENG, TOM V

ART UNIT PAPER NUMBER

2629

DATE MAILED: 05/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/506,290	<b>Applicant(s)</b> HOPPENBROUWERS ET AL.	
	<b>Examiner</b> Tom V. Sheng	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/31/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. Items AC, AD and AE under IDS have incorrect document numbers. Please re-submit IDS with corrected numbers for consideration.

### ***Drawings***

2. Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 7, 8, 9 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim (US 6,211,867 B1).

As for apparatus claim 1 and associated method claim 10, Kim teaches a flat panel display apparatus (fig. 1) comprising

plasma discharge cells (defined by intersections of scan and sustentation electrodes Y, bus electrodes X and address electrodes Z as shown in PDP 200) having sustain electrodes (i.e. electrodes X) and scan electrodes (i.e. electrodes Y; column 3 line 37 through column 4 line 26); and

a drive circuit (upper and lower address electrode drivers 150-1 and 150-2; fig. 1) having a circuit for providing data arranged in subfields to the discharge cells (data of one field is divided in 8 subfields and provided during the data writing step by writing or erasing image data through the Z electrodes; column 4 lines 27-54),

the drive circuit incorporating an energy recovery circuit (power recovery circuit 300; fig. 3), and means for activating the energy recovery circuit (recovery begins when control pulse erL is inputted to the recovery circuit 300 and stops when control pulse erH is inputted; column 5 lines 4-14) only for a part of the total number of subfields (Kim teaches that an user can variably control the applying time of the recovery voltage via the timing control circuit 700. See fig. 5. Specifically, the control pulse erH is controlled by setting the up-counter 706 and up-counter 708 accordingly. See column 6 lines 30-61. That is, by adjusting the control pulse erH, the timing of the application of recovery voltage is varied. Correspondingly, the recovery time, i.e. the time between the erH and

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erL pulses, can be made variable and even zero as controlled by the user. As a result, the recovery time can be individually controlled for each subfield, which means the energy recovery switching can be done on part of the total number of subfields.). See fig. 3, 4, column 4 line 55 through column 6 line 61 and Abstract for details.

As for claims 7 and 8, since the display is dependent on the display data (i.e. the display and/or subfield load) and the energy recovery would be performed on the active bits or weights. This selection reads on claimed discriminator having means for choosing the part of the subfields during which the energy recovery circuit is activated on the basis of the data (the display and/or subfield load) to be displayed.

As for claim 9, since the energy recovery time can be variably controlled by the user, the user is able to fix the number of subfields in which energy recovery is applied.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim.

As for claims 2 and 3, Kim teaches that the energy recovery time of each subfield can be varied and correspondingly even turned on or off. However, Kim does not teach

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“wherein said part of the number of subfields has on average a lower weight than the rest of the sub-fields” nor “the part of the subfields all have a lower weight ...”

On the other hand, it would have a matter of design choice based on the desired display characteristics and power savings. Especially since lower weight subfields occur more often than higher weight subfields, thus naturally it would be more effective to perform energy recovery on the lower weights.

7. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim as applied to claim 1 above, and further in view of Salavin et al. (US 6,124,676; hereinafter Salavin).

As for claim 4, Kim's scan electrodes X and address electrodes Z are crossing each others perpendicularly, as shown in fig. 1. Moreover, the R, G, B color subpixels are linearly distributed on each scan electrode X. However, Kim does not teach that the data electrodes (also known as address electrodes in PDP) are positioned in a zigzag configuration.

Salavin teaches a plasma display panel (fig. 2a). Specifically, each row electrode (Y1, Y2 ...) is in the form of a zig-zag in order to pass the color recesses Ep1, Ep2, Ep3 of each pixel P (column 1 line 66 through column 2 line 9 and column 6 lines 19-27). One of ordinary skill in the art recognizes that this distribution of recesses (i.e. color subpixels) and the use of a zigzag electrode are advantageous in improving light efficiency without degrading its contrast (fig. 2a; column 5 lines 1-21). Moreover, use of a zigzag electrode naturally eliminates the need of two parallel run sub-electrodes.

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Finally, even though it is the row/scan electrode being in a zigzag manner, it could alternatively be done with the data/address electrode being the one formed in a zigzag manner, since both ways are functionally equivalent with no one way being harder to implement than the other way.

Therefore, it would have been obvious to incorporate the teaching of Salavin in a modified manner such that the data/address electrodes are positioned in a zigzag manner passing through respective color subpixels, due to the advantageous in improving light efficiency without degrading contrast.

As for claim 5, as modified by Salavin, each data/address electrode is alternately coupled in subsequent rows to a cell (i.e. subpixel/recess) of a pixel in a first column and to a cell of a pixel (same pixel) in a column adjacent to the first column. That is, as modified, the cells/subpixels are alternately distributed between two columns and are accessed by a common address/data electrode formed in a zigzag manner.

As for claim 6, since claims 1, 5 and 6 do not recite the claimed invention as for color display, it is understood that in a monochromatic display, the zigzag coupled cells would be for grayscale display only and thus of the same "color".

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sekii (US 6,366,063 B1) teaches a circuit and method for driving capacitive load.

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Sano et al. (US 5,717,437 A) teaches a matrix display panel driver with charge collection circuit used to collect charge from the capacitive loads of the display.

Shirasawa (US 6,249,279 B1) teaches a data line drive device.

Minamibayashi (US 5,943,030 A) teaches a display panel driving circuit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom V. Sheng whose telephone number is (571) 272-7684. The examiner can normally be reached on 9:00am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Sheng  
March 18, 2006

AMR A. AWAD  
PRIMARY EXAMINER

